Chapter 2
Affected Environment

Chapter 2 of the Supplemental Draft EIS is incorporated by reference, in accordance with 40 CFR 1500.4(j) and (o), 1502.21 and 1506.4. The incorporated material can be found on pages 2-1 through 2-256 in Volume 1 of the Supplemental Draft EIS. The content is briefly summarized below, with changes based on public comment and internal review following the summary.

Summary

In addition to the conditions and trends summarized below, Chapter 2 discusses how information for the project was gathered and presented, positive ecological trends on Forest Service- and BLM-administered lands over the past 10 to 20 years, and basic ecosystem concepts. These concepts, such as historical range of variability, ecological processes and functions, and ecological integrity and ecosystem health, are included to help the reader better understand the rest of the chapter and the rest of the EIS. This information can be found in both the Supplemental Draft EIS and the Draft EISs.

Conditions and Trends in the Project Area

The ecological and social conditions and trends of the basin indicate a need for a new management strategy for public lands. Following is a brief overview of some of these current conditions and trends from the historical to current period.

Physical Setting

- Soil productivity across the project area is generally stable to declining. Generally, greater declines in soil productivity are associated with greater intensities of timber harvesting, roading, and grazing.
- Sustainability of soil ecosystem function and process is at risk in areas where redistribution of nutrients has resulted from changes in vegetation composition and pattern and removal of larger wood.

Basin — In this EIS, refers to the Interior Columbia Basin Ecosystem Management Project area, as defined in the *Scientific Assessment* (Quigley and Arbelbide 1997). Includes all ownerships, not just Forest Service, and BLM-administered lands.

Project Area — In this EIS, refers to Forest Service and BLM-administered lands in the Interior Columbia Basin Ecosystem Management Project area. Project area is synonymous with planning area.

Hydrology and Watershed Processes

- Management activities throughout watersheds in the project area have affected the processes of sedimentation and erosion and the production and distribution of organic material, thus affecting hydrologic conditions. On federally administered lands the most pronounced changes to watersheds are due to water diversions and impoundments, road construction, changes in vegetation due to silvicultural practices, and excessive livestock grazing.
- Stream flow regimes have been locally affected by dams, diversions, and groundwater withdrawal. More subtle but widespread changes to natural stream flows on federally administered lands have probably been caused by road construction and changes in vegetation due to silvicultural practices and excessive livestock grazing.

Air Quality

- The current condition of air quality in the project area is considered good, relative to other areas of the country.
- Current wildfires produce higher levels of smoke emissions than historically, because fuel available to be consumed by wildfire has increased.

Terrestrial (Upland) Vegetation

- Interior ponderosa pine has decreased across its range, with a significant decrease in the amount of old trees in single story structure. Western white pine and whitebark pine/alpine larch have decreased by 95 percent across their range in the project area.
- There has been a loss of the large tree component (live and dead) within roaded and harvested areas. This loss affects terrestrial wildlife species closely associated with these old-forest structures.
- Generally, mid aged forest structures have increased in dry and moist forests, with a loss of large, scattered, shade-intolerant tree components and an increase in density of smaller diameter shade-tolerant trees.
- Noxious weeds are spreading rapidly and in some cases exponentially throughout the project area. Cheatgrass and other exotic plant infestations have simplified species composition, reduced biodiversity, changed species interactions and forage availability, and reduced the system's ability to buffer against change or act as wildlife strongholds in the face of long-term environmental variation.
- Woody species encroachment by and/or increasing density of woody species (sagebrush, juniper, ponderosa pine, lodgepole pine, Douglas-fir), especially on the dry grassland and cool shrublands, have reduced herbaceous understory (such as grasses and forbs) and biodiversity.

Terrestrial Species

- Approximately 14,000 terrestrial plant and animal species were considered in the Terrestrial Ecology Assessment, including 548 vertebrates, 715 invertebrates, and more than 12,500 plant species.
- From historical to current periods, there has been an increase in fragmentation and loss of connectivity within and between blocks of habitat, especially in lower elevation forests, shrub-steppe, and riparian areas in the basin. Fragmentation has isolated some animal and plant habitats and populations and reduced the ability of populations to disperse across the landscape, resulting in potential, long-term loss of genetic interchange.
- Declines in plants and terrestrial vertebrates are due to a number of human causes including: conversion of habitat to agriculture and urban development, grazing, timber harvest, introduction

of exotic plant and animal species, recreation, high road densities, fire exclusion, and mining.

- Biological crusts have been degraded and their development has been inhibited in some rangeland cover types by recreational activities, excessive livestock grazing pressure, and exotic undesirable plant invasions. Degradation of biological crusts and inhibition of biological crust development often causes and perpetuates an increase in soil erosion.

Aquatic-Riparian-Hydrologic Component

Aquatic and Riparian Habitats

- Important aspects of stream channel stability, such as channel complexity and large wood abundance, have decreased throughout much of the project area. Aquatic species habitat features such as riffle-pool frequency and wood frequency are generally less in areas with higher road densities and in areas where timber harvest has been a management emphasis.
- The overall extent and continuity of riparian areas and wetlands has decreased, primarily because of conversion to agriculture but also because of urbanization, transportation improvements, and stream channel modifications.
- Most riparian areas on Forest Service- or BLM-administered lands are either "not meeting objectives", "non-functioning", or "functioning at risk."
- Within riparian woodlands, the abundance of mid seral vegetation has increased, whereas the abundance of late and early seral structural stages has decreased, primarily because of fire exclusion and harvest of large trees.
- Within riparian shrublands, there has been extensive conversion to riparian herblands and increases in exotic grasses and forbs, both primarily because of processes and activities associated with excessive livestock grazing pressure. Finer scale information also indicates an extensive spread of western juniper into riparian shrublands.
- There is an overall decrease in large trees and late seral vegetation in many riparian areas.

Water Quality

- Management activities throughout the project area have affected water quality, which is important to aquatic habitats and riparian and wetland areas. On federally administered lands, the most pronounced changes to water quality are due to road construction, changes in vegetation (from silvicultural practices and fire exclusion), excessive livestock grazing, and water diversions and impoundments. These activities have altered the streamflow, erosion, and sedimentation regimes, as well the production and distribution of organic material.
- Within the project area, approximately eight percent of stream miles on Forest Service- and BLM-administered lands are water quality limited as defined by the Clean Water Act. On Forest Service-administered lands, the primary water quality problems are non-point sources of pollution consisting of sedimentation, turbidity, flow alteration, and high temperatures. On BLM-administered lands, water quality limited segments are listed because of non-point pollution sources consisting of high sediment, turbidity, and high temperatures.

Aquatic Species

- The composition, distribution, and status of fishes within the project area are different than they were historically. Some native fishes have been extirpated from large portions of their historical ranges.
- Many native nongame fish are vulnerable because of their restricted distribution or fragile or unique habitats.
- Although several of the key salmonids are still broadly distributed (notably the cutthroat trout and redband trout), declines in abundance, loss of life history patterns, local extinctions, and fragmentation and isolation in smaller blocks of high quality habitat are apparent.
- Wild chinook salmon and steelhead are near extinction in a major part of their remaining habitat.

Social-Economic-Tribal Component

Social and Economic Considerations

- The project area is sparsely populated and rural, especially in areas with a large amount of federal lands. Some areas are experiencing rapid population growth, especially those areas offering high quality recreation and scenery.
- Development for a growing human population is encroaching on previously undeveloped areas adjacent to lands administered by the Forest Service or BLM. Population growth and associated new development can put stress on the political and physical infrastructure of rural communities, diminish habitat for wildlife, and increase agency costs to manage fire to protect people and structures.
- Changing levels and values of commodity outputs can affect budgets of counties that have benefitted from federal sharing of receipts from sales of commodities and services on BLM- and Forest Service-administered lands.
- At the local level, some communities rely on economic activity supported by timber harvest levels, processing of forest products, livestock grazing, mining, and recreation. Forest products and AUMs no longer solely dictate the economic prosperity of the region, even though they remain economically and culturally important in rural areas. The economic dependence of communities on these industries is highest in areas that are geographically isolated and offer few alternative employment opportunities.

Federal Trust Responsibility and Tribal Rights and Interests

- The relationship that American Indians have with federal lands may be affected by proposed actions on forestlands and rangelands that change vegetation structure, composition, and density; existing roads; and watershed conditions.
- Culturally significant species such as anadromous fish and the habitat necessary to support healthy, sustainable, and harvestable aquatic and terrestrial species constitute one of the major American Indian interests potentially affected by the ICBEMP decision.

Modifications Made to ICBEMP Supplemental Draft EIS
Chapter 2

Page/Column/Paragraph or Table/Fig/Map/Photo	Change Made (bold = new; strikeout = delete)
2-20/left/1st para	***Revise:*** This decomposition process is a critical link in the nutrient cycling process, especially for plant nutrients such as ~~carbon~~, nitrogen, potassium, **and** phosphorous**.** ~~and sulfur~~.
2-33/left/2nd para/Ist sentence	***Revise:*** The Clean Air Act, passed in ~~1955~~ **1977**...
2-34/Map 2-4	***Add:*** a star marking Spokane county, Washington as being a PM_{10} nonattainment area.
Landscape Dynamics Component: Terrestrial (Upland) Vegetation	
2-40/left/2nd para/2nd sentence	***Revise:*** More than ~~12,000~~ **12,500** plant species are known in the project area.
2-40/left/3rd para/2nd sentence	***Revise:*** Approximately ~~13,000~~ **14,000** terrestrial plant and animal species...
2-40/left/3rd para/last sentence	***Delete:*** ~~Wisdom et al. (in press) conducted an in-depth analysis of habitat requirements of 91 species that represented those 13,000 species~~.
Terrestrial Species Component	
2-92/left/first bullet/last sentence	***Delete:*** ~~The Supplemental Draft EIS focuses on 91 terrestrial species (a total of 97 "species-seasonal combinations") that are of broad-scale concern and whose habitat could be mapped reliably using available broad-scale data.~~
2-102/left/Background: Refined Terrestrial Vertebrates Analysis	***Insert at the beginning of this section:*** **Lehmkuhl et al. (1997) presents the background for the analysis of effects on terrestrial vertebrates in the Draft EISs. Terrestrial species in the basin were assigned to one of three groups. One is a group of species for which no further analysis was considered necessary. The second group contains species that are of concern at the local level (fine-scale). The third group is composed of species that are of regional conservation concern. The species in this third group were identified based on four criteria:** **1. Habitat for the species has declined historically or might decline in the future under any of the alternatives; or** **2. The species is associated with a specific habitat feature (such as snags) that has declined in the past or might decline under any of the alternatives; or** **3. The species population has undergone a significant decline based either on data or expert opinion; and** **4. The species is sufficiently widespread within the project area that it can be legitimately assessed at the scale of a regional plan.**

Modifications Made to ICBEMP Supplemental Draft EIS
Chapter 2 (Continued)

Page/Column/Paragraph or Table/Fig/Map/Photo	Change Made (bold = new; strikeout = delete)
2-103/top of page	***Insert Table 2-22a at top of page:***

Table 2-22a. Number of Species Analyzed for the ICBEMP.

Taxonomic Group	Total in Basin	Analyzed in Lehmkuhl et al. 1997[1]	Analyzed as broad-scale in Wisdom et al. (2000)[2]	Classified as fine-scale in Wisdom et al. (2000)[2, 3]
birds	362	133	52	67 (65)
mammals	132	20	32	3 (3)
reptiles	27	13	7	4 (4)
amphibians	27	7	0	9 (9)

[1] Species analyzed for Draft EISs.
[2] Species analyzed for Supplemental Draft EIS.
[3] Number of riparian/wetland species in parentheses.

2-105/right/2nd para/2nd sentence	***Revise:*** ...lands have decreased from "A" to "D" for pygmy nuthatch and from ~~"A" to "E"~~ **"B" to "E"** for Lewis' woodpecker (see Table 2-23a).
2-105/right/2nd full para/ 2nd sentence	***Insert after 2nd sentence:*** **(See the Effects of the Alternatives on Terrestrial Vertebrates section in Chapter 4 for a discussion of the various outcome levels.)**
2-107/Table 2-23a	***Add footnote:*** **See the Effects of the Alternatives on Terrestrial Vertebrates section in Chapter 4 for a discussion of the various outcome levels.**
2-107/Table 2-23a/Column 2	***Revise:*** for Lewis' woodpecker (migrant), Predicted Environmental Outcomes-FS/BLM lands, Historical: ~~A~~ **B**
2-107/Table 2-23a/Column 4	***Revise:*** for Lewis' woodpecker (migrant), Predicted Population Outcomes—Cumulative, All lands, Historical: ~~A~~ **B**
2-113/left/2nd full para/ Terrestrial Family 12/ last sentence	***Revise:*** Increasing forest encroachment adversely affects the Idaho ground squirrel, **grasshopper sparrow, and to a lesser degree Columbian sharp-tailed grouse**.
2-115/Map 2-11b	***Revise:*** Map 2-11b, Carnivore Habitat with Low Road Density now shows all of Areas 1, 3, and 7, including the portions outside the project area. (The revised map follows at the end of this chapter.)
2-117/right/4th para	Not all ~~federal candidate or~~ agency sensitive species are necessarily in decline; ...

Page/Column/Paragraph or Table/Fig/Map/Photo	Change Made (bold = new; strikeout = delete)
2-118/right/2nd para/1st sentence	***Revise:*** Gray wolves are known to occur in Idaho, ~~and~~ Montana, **Washington, and Oregon**.
2-118/right/2nd para/2nd sentence	***Revise:*** ... and Washington**, however the U.S. Fish and Wildlife Service has recently proposed to change this classification to threatened.**
2-119/Table 2-24	***Revise:*** Lynx — ~~PT~~ to **T** ***Revise:*** Northern Idaho ground squirrel — ~~PT~~ to **T** ***Revise:*** Spalding's catchfly — ~~PE~~ to **PT** ***Revise:*** Showy stickseed — ~~C~~ to **PE** ***Add:*** **Coastal cutthroat trout *Oncorhynchus clarki clarki*** ***Add:*** **Columbia river chum salmon *Oncorhynchus keta*** ***Revise:*** Source: U.S. Fish and Wildlife Service (July 15, 1999), *Federal Register* ~~18/28/99~~ **12/22/99** and 10/25/99
2-120/left/1st para/last sentence	***Delete last sentence and replace with:*** **The U.S. Fish and Wildlife Service has completed a Final EIS related to reintroduction of grizzly bears in the Bitterroot recovery area, and has issued a decision to reintroduce grizzly bears into the Bitterroot recovery area as an experimental, non-essential population.**
2-120/right/1st para/1st sentence	***Delete:*** ~~In 1998, the U.S. Fish and Wildlife Service proposed to list the lynx as threatened.~~ ***Insert:*** **In 2000, the U.S. Fish and Wildlife Service listed the lynx as a threatened species.**
2-120/right/1st para/3rd sentence	***Delete:*** ~~A decision on listing is anticipated in January 2000.~~
2-120/right/1st para/4th sentence	***Revise:*** ~~has also been proposed for listing~~ **was listed** as threatened **in April 2000.**
2-120/right/1st para /last sentence	***Insert:*** **The showy stickseed, found in one to four localized populations in central Washington has been proposed for listing as endangered.**
2-120/right/2nd para	***Delete:*** showy stickseed (central Washington)
Aquatic-Riparian-Hydrologic Component	
2-132/right/pull quote and 2nd full para	***Revise:*** **The BLM estimates that** 66% of BLM-administered riparian areas in the western United States are either "non-functioning" or "functioning at risk"...
2-140/right/1st full para/1st sentence	***Revise:*** ~~Sixteen~~ **Seventeen** fish species or species stocks in the project area are formally listed under the Endangered species Act, **one is proposed for listing as threatened (coastal cutthroat trout)**, and one qualifies for listing (candidate species: coho salmon).
2-140/right/1st full para/3rd sentence	***Revise:*** Nine species or species stocks are listed... Warner sucker, ~~and~~ Lahontan cutthroat trout, **and chum salmon (Columbia River).**
2-140/right/1st full para	***Add the following as last sentence:*** **There is only a very small overlap in potential distribution of Columbia chum salmon and coastal cutthroat trout with the ICBEMP project area. The overlap is limited to isolated parcels of BLM-administered lands.**
2-148/right/1st para/last sentence	***Revise:*** Current and historical distributions of Yellowstone cutthroat trout **within the project area** are illustrated on Map 2-17.

Modifications Made to ICBEMP Supplemental Draft EIS
Chapter 2 (Continued)

Page/Column/Paragraph or Table/Fig/Map/Photo	Change Made (bold = new; strikeout = delete)
2-149/left/3rd para/4th sentence	***Revise:*** ~~Westslope cutthroat have been petitioned for listing under the Endangered Species Act and is currently under status review by the U.S. Fish and Wildlife Service.~~ **Westslope cutthroat trout were petitioned for listing under the Endangered Species Act; in spring 2000 the U.S. Fish and Wildlife Service determined that the species condition does not warrant listing as threatened or endangered.**
2-152/left/5th full para/last sentence	***Revise:*** ~~The Great Basin resident interior population has been petitioned for listing under the Endangered Species Act and is currently under status review by the U.S. Fish and Wildlife Service.~~ **The Great Basin resident-interior population was petitioned for listing under the Endangered Species Act; in spring 2000 the U.S. Fish and Wildlife Service determined that the species condition does not warrant listing as threatened or endangered.**
Social-Economic-Tribal Component	
2-165/Key Terms	***Insert:*** **Natural Areas—Areas that are managed by various federal agencies for a variety of purposes but that are maintained in a relatively natural state, with minimal human disturbance. Natural areas are designated for purposes of recreation, research, monitoring, inventory, habitat protection, education or scenic quality.**
2-169/Map 2-24	***Revise:*** Map title: Counties and **BEA** Economic Subregions
2-171/Map 2-25	***Add:*** **Source: Johnson and Beale (1995)** under Recreation and Metropolitan Counties
2-175	***Add pull quote:*** **More extensive discussions on recreation and scenery can be found in the Draft ElSs (1997).**
2-178/left/2nd full para/2nd sentence	***Revise:*** ...is important to meet the ~~growing~~ regional and national demand for this type...
2-178/right	***Insert the following new section after the Scenery section:***

Natural Areas

Approximately 12.5 million acres of natural areas are distributed throughout the project area (see Map 2-28a). They include designated wilderness areas, wilderness study areas, research natural areas, areas of critical environmental concern, botanical areas, and other similar areas. They can occur in all categories of land allocations and can vary in management objectives and allowed uses. Natural areas can provide unique recreational, scenic, and cultural opportunities; science learning opportunities; and environments that are important for conserving native plant or animal species and ecological functions and processes.

Page/Column/Paragraph or Table/Fig/Map/Photo	Change Made (bold = new; strikeout = delete)
	The *Scientific Assessment* found that approximately 25 to 28 percent of BLM and Forest Service administered lands in the project area are within some type of natural area designation or category (Hann et al. 1997c, Marcot et al. 1997). **Natural area management is both a science and a social issue. Marcot et al. (1997) and Greene et al. (1997) identified the role that designated natural areas play in the basin, including providing for representation of native species and habitats; and as centers of species rarity, endemism, and biodiversity. They found that while there are some large natural areas (such as wilderness areas), most designated natural areas are small, occur in high upper elevations, and do not fully represent all native vegetation communities.** **The other aspect of natural areas deals with people's perceptions of what is natural, and people's use of and expectations for these natural landscapes. Society values areas that are perceived as being "unroaded'. In the Economics chapter (Haynes and Home 1997) of the *Assessment of Ecosystem Components,* these existence values were used as a proxy to measure ecosystem condition in the sense of maintaining options for future generations.**
2-179/Map 2-28a	***Insert:*** New map (**Map 2-28a**) of Natural Areas. The new map follows at the end of this chapter.
2-183/right/2nd full para/ 1st sentence	***Revise:*** During the 1990s, there has been a... but with some contribution for softening **export** demand for timber...
2-189/left/top para/1st full sentence	***Revise:*** *A* complete accounting of economic benefits would include **values held by local and regional residents, as well as** value obtained by people who may not ever visit the project area...
2-193/right/3rd full para/1st sentence	***Revise:*** an estimated 77,000 **direct** jobs...
2-193/right/last para	***Delete:*** ~~A regional economic study conducted by the Forest Service in the central Rocky Mountains recognized the export nature of some tourist-related service industries. The effect of these service/tourist industries on the local economy was found to be similar to the earnings returned to a local firm from the export of physical commodities (DeVilbiss 1992).~~ ***Add:*** remaining sentence to previous paragraph

Modifications Made to ICBEMP Supplemental Draft EIS
Chapter 2 (Continued)

Page/Column/Paragraph or Table/Fig/Map/Photo	Change Made (bold = new; strikeout = delete)
2-223	***Insert sidebar before Overview of Fire Suppression Influence:***

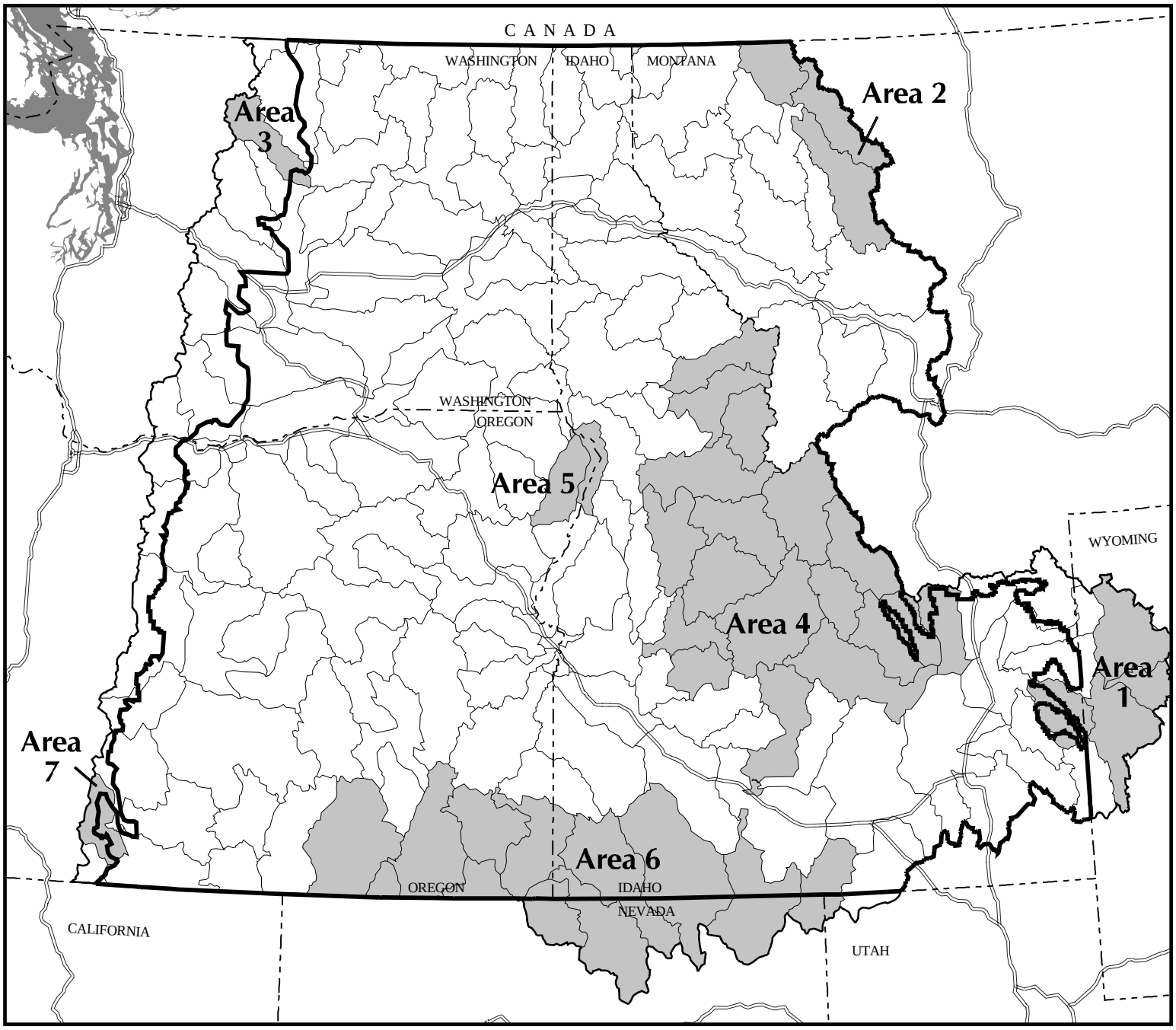
Effects of the Year 2000 Wildfires on the Interior Columbia River Basin

In the summer of 2000, nearly 7,000 wildfires started from lightning or human activities within the project area. Most (96 percent) were controlled before they could grow to a significant size. However, the ones that escaped initial suppression efforts covered almost 3 million acres before they were stopped. The result is that the year 2000 will be remembered as one of the most serious fire seasons in the past 100 years. To fully evaluate and understand the effects of these fires at a fine scale will take years. However, at the basin-scale, while the size and severity of some of these fires were outside the historical range of variability, the conditions and effects were within the range predicted in the Supplemental Draft EIS. In fact, the present and future risk of uncharacteristically large and severe fires is well documented in the EIS.

To understand the significance of these fires, it is helpful to consider both the historical and the ecological context in which these fires occurred. Many factors combined to create the conditions that led to the unusually high number and size of wildfires as well as some uncharacteristic fire severity: (1) Fuel loads resulting from decades of wildfire suppression provided the contiguous combustible material necessary for wildfire ignition and spread. (2) Drought reduced the fuel moisture to extremely low levels and put the trees and other vegetation in a moisture stress condition and making them extremely flammable. (3) The mid to late summer weather in the basin was ideal for wildfire with several lightning and wind events, very little rainfall, hot temperatures, and low humidity. (4) As a result of the extraordinary number of large fires and limited suppression resources nation-wide, fire managers were forced to prioritize their resources.

Over 2,000,000 acres of the area burned is on lands administered by the BLM or the Forest Service. This area includes all moisture regimes and a wide spectrum of habitats. According to the Science Advisory Group (Hemstrom et al. 2000), the amount of burned area is roughly 1.5 times the average annual area predicted to burn from wildfire over the next 100 years under Alternative S1 (continuation of current management). Therefore, the actual burned acres are well within the long-term expected range of wildfire acreage.

As the ICBEMP is implemented, the cumulative effects of the summer 2000 fires and other past and future fires will be calculated and the risks to the burned areas will be analyzed through the step-down process. The information produced will help the BLM, Forest Service, and their partners better manage landscapes where fire is an inevitable and dominant force of nature.



50 0 50 100 150 miles

50 0 50 100 150 km

N

Map 2-11b.
Carnivore Habitat with Low Road Density

Overlap of moderate to high carnivore habitat abundance with zero to low road density

Subbasin Borders

Major Roads

Planning Area Border

Area 1 - *Greater Yellowstone Area*

Area 2 - *Northern Continental Divide Area*

Area 3 - *North Cascades Area*

Area 4 - *Bitterroot-Central Idaho Area*

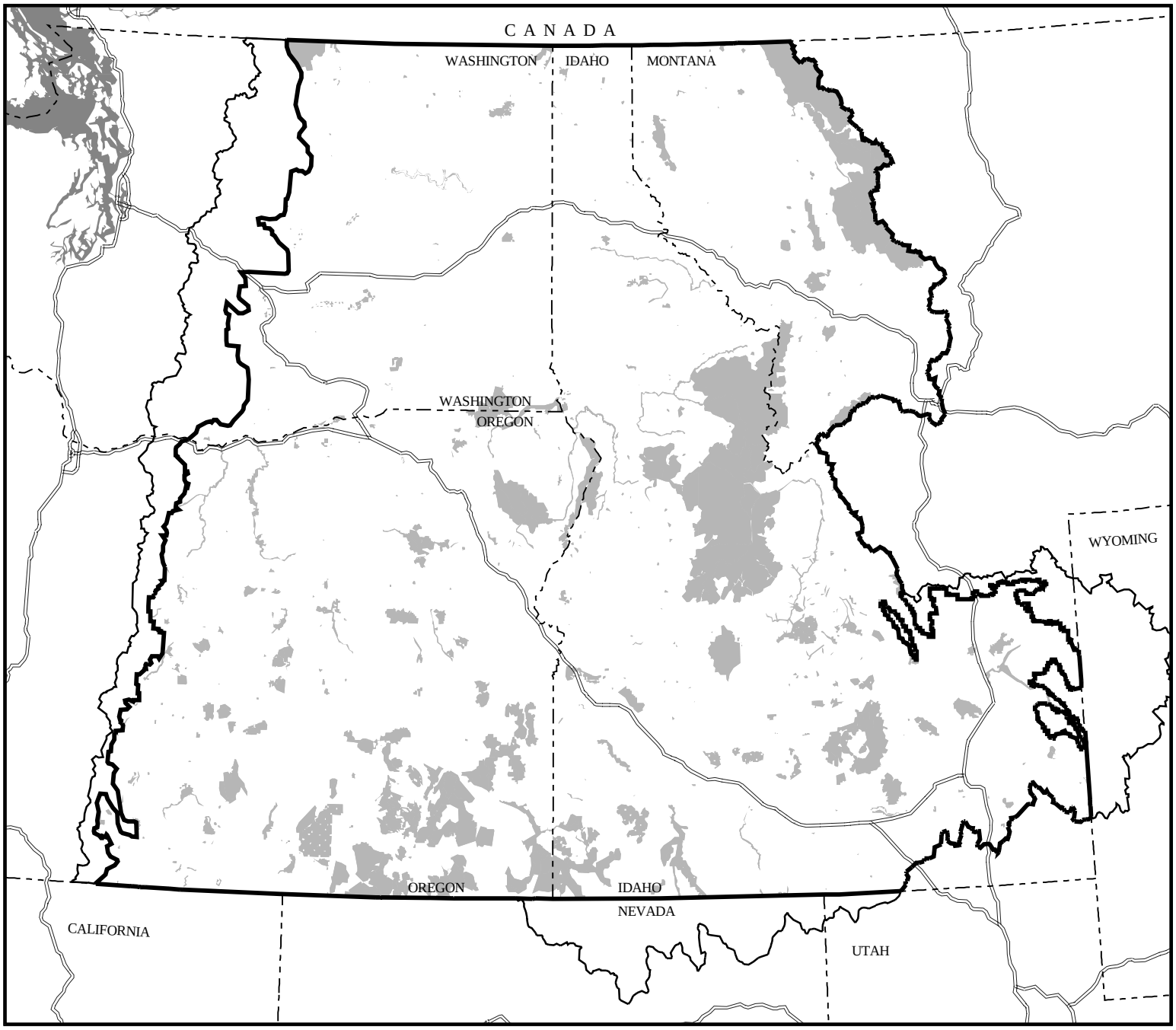
Area 5 - *Eagle Cap Wilderness-Hells Canyon Area*

Area 6 - *Owyhee Area*

Area 7 - *Crater Lake Area*

INTERIOR COLUMBIA
BASIN ECOSYSTEM
MANAGEMENT PROJECT

Final EIS
2000



50 0 50 100 150 miles

50 0 50 100 150 km

N

Map 2-28a.
Natural Areas

Natural Areas

Major Roads

Planning Area Border

INTERIOR COLUMBIA
BASIN ECOSYSTEM
MANAGEMENT PROJECT

Final EIS
2000